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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/896,703	06/29/2001	Sumit A. Talwalkar	CM03093J	9139

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EXAMINER

MEEK, JACOB M

ART UNIT PAPER NUMBER

2637

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/896,703

Applicant(s)

TALWALKAR ET AL.

Examiner

Jacob Meek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 6, 8 - 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 6, 8 - 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 11, 2005 has been entered.

Response to Amendment

2. The affidavit filed on July 11, 2005 under 37 CFR 1.131 is sufficient to overcome the Moher and Wannasarnmaytha references.

Claim Objections

3. Claims 1, 6, 12 are objected to because of the following informalities: "one-step" addition to claims appears to be a new limitation and examiner did not note support for one step in disclosure. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 - 6, 8 - 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chalmers et al (US-5,272,446).

With regard to claim 1, Chalmers discloses a digital receiver fast frequency and time acquisition system comprising: a 1st channel select (CS) filter filtering an incoming digital baseband signal (see figure 2, dual 5kHz LPF and 10-bit A/D, and column 6, lines 28 - 32); a frame synchronization detector for recognizing a single time synchronization word from the 1st filtered signal (see figure 2, 250 and column 48 - 59); a coarse symbol time estimator for coarsely determining the symbol time synchronization of the digital signal (see figure 2, 220 and column 10, lines 1- 33 where coarse frequency estimator provides equivalent functionality as time is related to frequency by the relationship $t = 1/f$); a fine frequency estimator for finely determining the frequency error of the signal from the coarse signal time estimator for providing a frequency adjustment signal (see figure 2, 230 and column 8, lines 23 - 39); a mixer for combining the incoming baseband signal with the frequency adjustment signal (see figure 2, freq. Correction); a 2nd CS filter for filtering the frequency corrected digital signal (see figure 2, matched filter and column 8, lines 40 - 47); a fine symbol time estimator for determining symbol timing with greater precision of the filtered signal from the 2nd CS filter (see figure 2, timing estimator, timing adjust, slot timing adjustment and Doppler estimator smoother and column 8, lines 40 - 47); and a symbol detector for interpreting the digital signal from the fine symbol time estimator (see figure 2, decisions to link processor). Chalmers discloses the claimed invention except for location of frame synch detector (figure 2, 250). It would have been obvious to one of ordinary skill in the art at the time of invention was made to relocate frame synchronization detector, since it has been held that rearranging parts of an invention involves only routine skill in the art (*In re Japiske*, 86 USPQ 70).

With regard to claim 2, Chalmers discloses a digital receiver wherein 1st CS filter has a larger bandwidth (see figure 2, dual 5kHz LPF) than the 2nd CS filter (see column 8, lines 40 – 47).

With regard to claim 3, Chalmers discloses sampling at 4800 Hz in 1st stage (see figure 7, $f_s = 4800$ Hz), and sampling at 1200 Hz in the 2nd stage (see figure 2, $F_s = 1200$ Hz), which is a simple fraction as claimed.

With regard to claim 4, Chalmers discloses the claimed invention except for 1st CS filter bandwidth. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set filter bandwidth, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum of workable ranges involves only routine in the art (*In re Allier*, 105 USPQ 233).

With regard to claim 5, Chalmers discloses the claimed invention except for 2nd CS filter bandwidth. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set filter bandwidth, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum of workable ranges involves only routine in the art (*In re Allier*, 105 USPQ 233).

With regard to claim 6, Chalmers discloses a fast frequency and time acquisition system for synchronizing digital information for use with a digital RF receiver comprising: a 1st channel select (CS) filter filtering an incoming digital baseband signal (see figure 2, dual 5kHz LPF and 10-bit A/D, and column 6, lines 28 - 32); a frame synchronization detector for recognizing a single time synchronization word from the 1st filtered signal (see figure 2, 250 and column 48 – 59); a coarse symbol time estimator for coarsely determining the symbol time synchronization of the digital signal (see figure 2, 220 and column 10, lines 1- 33 where coarse frequency estimator provides equivalent functionality as time is related to frequency

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by the relationship $t = 1/f$); a fine frequency estimator for finely determining the frequency error of the signal from the coarse signal time estimator for providing a frequency adjustment signal (see figure 2, 230 and column 8, lines 23 – 39); a mixer for combining the incoming baseband signal with the frequency adjustment signal (see figure 2, freq. Correction); a 2nd CS filter for filtering the frequency corrected digital signal (see figure 2, matched filter and column 8, lines 40 – 47); a fine symbol time estimator for determining symbol timing with greater precision of the filtered signal from the 2nd CS filter (see figure 2, timing estimator, timing adjust, slot timing adjustment and Doppler estimator smoother and column 8, lines 40 – 47); and a symbol detector for interpreting the digital signal from the fine symbol time estimator (see figure 2, decisions to link processor). Chalmers discloses the claimed invention except for location of frame synch detector (figure 2, 250). It would have been obvious to one of ordinary skill in the art at the time of invention was made to relocate frame synchronization detector, since it has been held that rearranging parts of an invention involves only routine skill in the art (*In re Japiske*, 86 USPQ 70).

With regard to claim 8, Chalmers discloses a digital receiver wherein 1st CS filter has a larger bandwidth (see figure 2, dual 5kHz LPF) than the 2nd CS filter (see column 8, lines 40 – 47).

With regard to claim 9, Chalmers discloses sampling at 4800 Hz in 1st stage (see figure 7, $f_s = 4800$ Hz), and sampling at 1200 Hz in the 2nd stage (see figure 2, $F_s = 1200$ Hz), which is a simple fraction as claimed.

With regard to claim 10, Chalmers discloses the claimed invention except for 1st CS filter bandwidth. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set filter bandwidth, since it has been held that where the general

conditions of a claim are disclosed in the prior art, discovering the optimum of workable ranges involves only routine in the art (*In re Allier*, 105 USPQ 233).

With regard to claim 11, Chalmers discloses the claimed invention except for 2nd CS filter bandwidth. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set filter bandwidth, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum of workable ranges involves only routine in the art (*In re Allier*, 105 USPQ 233).

With regard to claim 12 - 16, the steps claimed as method are nothing more than a restatement of the functions of the apparatus of claims 6 & 8 – 11, respectively, and therefore would have been obvious given the aforementioned rejection of claims 6, and 8 - 11.

Other Cited Prior Art

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Natali (US-5,717,713), Huang (US-6,058,101), Soleimani (US-6,373,858), and Huber (US-6,818,452) all disclose aspects of applicant's claimed invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Meek whose telephone number is (571)272-3013. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571)272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMM
8/20/05



JAY K. PATEL
SUPERVISORY PATENT EXAMINER